

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of producing a magnetic recording medium comprising:

a recording layer processing step, which by forming a plurality of grooves, with a minute spacing therebetween in a planar direction, in an intermediate ~~from a production process for a magnetic recording medium product~~ produced by forming a continuous recording layer on top of a substrate surface, partitions said continuous recording layer into a plurality of partitioned recording elements;

a non-magnetic body filling step for filling said grooves between said partitioned recording elements with a non-magnetic body; and

a protective layer formation step for forming a protective layer that protects said partitioned recording elements and said non-magnetic body, wherein

~~said recording layer processing step, said non-magnetic body filling step, and said protective layer formation step is are conducted with an environment surrounding said intermediate product maintained in a state of vacuum all through these steps.~~

2. (Canceled)

3. (Original) The method of producing a magnetic recording medium according to claim 1, wherein

a dry process cleaning step, which uses either one of a gas and a plasma for removing foreign matter from an environment surrounding said partitioned recording elements, is provided between said recording layer processing step and said non-magnetic body filling step.

4. (Original) The method of producing a magnetic recording medium according to claim 1, wherein

a smoothing step for smoothing a surface of said partitioned recording elements and said non-magnetic body is provided between said non-magnetic body filling step and said protective layer formation step.

5. (Original) The method of producing a magnetic recording medium according to claim 4, wherein

said smoothing step is a dry plasma step which allows ions to collide with a surface of said partitioned recording elements and said non-magnetic body at an incidence angle that is restricted to a value within either one of a range from -10 to 15° and a range from 60 to 90°.

6. (Original) The method of producing a magnetic recording medium according to claim 5, wherein said dry plasma step uses ion beam etching.

7. (Original) The method of producing a magnetic recording medium according to claim 1, wherein

in said recording layer processing step, said continuous recording layer is partitioned by reactive ion etching using carbon monoxide gas containing an added nitrogen based compound as a reactive gas.

8. (Currently Amended) The method of producing a magnetic recording medium according to claim 1, wherein

in said non-magnetic body filling step, said non-magnetic body is used to fill said grooves between said partitioned recording elements using either one of plasma CVD with bias power to said intermediate product and bias sputtering.

9. (Original) The method of producing a magnetic recording medium according to claim 8, wherein

said non-magnetic body filling step uses a material comprising any one selected from the group consisting of an oxide material, a nitride material, and a non-magnetic amorphous material as said non-magnetic body.

10. (Original) The method of producing a magnetic recording medium according to claim 9, wherein

said non-magnetic body filling step uses silicon dioxide as said non-magnetic body.

11. (Currently Amended) The method of producing a magnetic recording medium according to claim 8, wherein

~~a barrier film formation step, which uses either one of a plasma CVD method and a sputtering method for forming a barrier film on said partitioned recording elements, is provided between said recording layer processing step and said non-magnetic body filling step.~~

12. (Original) The method of producing a magnetic recording medium according to claim 11, wherein

said barrier film formation step forms a barrier film of diamond-like carbon.

13. (Withdrawn-Currently Amended) A production apparatus for a magnetic recording medium comprising:

recording layer processing device, which by forming a plurality of grooves, with a ~~minute~~ spacing therebetween in a planar direction, in an intermediate ~~product from a production process for a magnetic recording medium~~ produced by forming a continuous recording layer on top of a substrate surface, partitions said continuous recording layer into a plurality of partitioned recording elements; and

vacuum retention device, which houses said recording layer processing device, and maintains an environment surrounding said intermediate ~~product~~ in a state of vacuum.

14. (Withdrawn) The production apparatus for a magnetic recording medium according to claim 13, wherein

non-magnetic body filling device for filling said grooves between said partitioned recording elements with a non-magnetic body, and protective layer formation device for forming a protective layer that protects said partitioned recording elements and said non-magnetic body are provided inside said vacuum retention device.

15. (Withdrawn) The production apparatus for a magnetic recording medium according to claim 13, wherein

dry process cleaning device for removing foreign matter from an environment surrounding said partitioned recording elements using either one of a gas and a plasma is provided inside said vacuum retention device.

16. (Withdrawn) The production apparatus for a magnetic recording medium according to claim 13, wherein

barrier film formation device for forming a barrier film on said partitioned recording elements using either one of a plasma CVD method and a sputtering method is provided inside said vacuum retention device.

17. (Withdrawn) The production apparatus for a magnetic recording medium according to claim 13, wherein

smoothing device for smoothing a surface of said partitioned recording elements and said non-magnetic body is provided inside said vacuum retention device.

18. (Withdrawn-Currently Amended) A production apparatus for a magnetic recording medium comprising:

means for partitioning a continuous recording layer into a plurality of partitioned recording elements by forming a plurality of grooves, with a minute spacing therebetween in a planar direction, in an intermediate ~~product from a production process for a~~

magnetic recording medium, the intermediate product produced by forming the continuous recording layer on top of a substrate surface;

means for filling the grooves between the partitioned recording elements with a non-magnetic body; and

means for forming a protective layer that protects the partitioned recording elements and the non-magnetic body;

wherein the partitioning of the continuous recording layer into a plurality of partitioned recording elements is conducted with an environment surrounding the intermediate product maintained in a state of vacuum.